

IN THE CLAIMS:

1. (Currently Amended) ~~A humidification~~ Humidification apparatus for providing ~~humidifying~~ humidified gas ~~for to~~ a patient or other person in need of such gas comprising:
an inlet for receiving gas,
a humidifier configured to provide water vapour to at least some of said gas received
at said inlet so that at least some of the received gas is humidified and/or heated,
an outlet through which humidified and/or heated gas is discharged from the
humidifier, providing gas with a predetermined humidity and/or temperature,
~~a humidifier configured to provide water vapour to said gas passing through said~~
~~humidification apparatus,~~
an air heater configured to directly heat at least some of said gas passing through said
humidification apparatus, in parallel to said humidifier,
at least one sensor configured to provide an indication of at least two of, relative
humidity, absolute humidity and temperature of said gas,
a controller or processor configured to energise said humidifier and said air heater to
achieve a ~~predetermined~~ combination of any two of predetermined absolute humidity,
predetermined relative humidity and predetermined temperature of said gas.
2. (Currently Amended) ~~A humidification~~ Humidification apparatus as claimed in claim
1 wherein said sensor ~~comprising~~ comprises an absolute humidity sensor for providing an
indication of the absolute humidity of said gas at at least one point in the flow path of said gas
through said apparatus ~~of said gas,~~ and wherein said humidifier ~~including~~ includes a body of
liquid water.

3. (Currently Amended) ~~A humidification~~ Humidification apparatus as claimed in claim 2 wherein said humidifier ~~comprising~~ comprises a metal spiral element to heat said body of water.

4. (Currently Amended) ~~A humidification~~ Humidification apparatus as claimed in claim 2 wherein said humidifier ~~comprising~~ comprises a heated porous ceramic member adapted to be in contact with said body of water and said gas.

5. (Currently Amended) ~~A humidification~~ Humidification apparatus as claimed in claim 2 wherein said humidifier ~~comprising~~ comprises a heated semipermeable membrane adapted to be in contact with said body of water and said gas.

6. (Currently Amended) ~~A humidification~~ Humidification apparatus as claimed in claim 1 wherein said air heater ~~having~~ has a humidification bypass, for allowing a portion of said gas to flow ~~to pass~~ from said inlet to said outlet substantially without humidification.

7. (Currently Amended) ~~A humidification~~ Humidification apparatus as claimed in claim 6 wherein said humidifier includes a body of liquid water, said humidification bypass ~~including~~ includes a bypass conduit ~~in~~ at least partially passing through said body of water for conveying a portion of said gas from said inlet to said outlet, substantially without humidification, and a valve is provided in said ~~bypass conduit~~ to allow restriction thereby ~~restrict the flow rate~~ of the portion of said gas ~~in passing through~~ said bypass conduit, the gas flowing through said bypass conduit being heated by the surrounding said body of water.

8. (Currently Amended) ~~A humidification~~ Humidification apparatus as claimed in claim 6 wherein said humidification bypass ~~further having~~ includes a bypass conduit for conveying a portion of said gas from said inlet to said outlet substantially without humidification, ~~including~~ a bypass heater adapted to heat the portion of said gas in said bypass conduit and/or said bypass conduit, and a valve provided ~~in said bypass conduit to thereby restrict the flow rate~~ allow restriction of the portion of said gas in said bypass conduit.

9. (Currently Amended) ~~A humidification~~ Humidification apparatus as claimed in claims 7 or 8 wherein the restriction of the flow rate provided by said valve is in use permanently set.

10. (Currently Amended) ~~A humidification~~ Humidification apparatus as claimed in claims 7 or 8 wherein the restriction of the flow rate provided by said valve is in use manually adjustable.

11. (Currently Amended) ~~A humidification~~ Humidification apparatus as claimed in claims 7 or 8 further comprising a flow sensor providing an indication of the instantaneous flow rate of said gas, through said humidification apparatus, wherein said ~~control~~ controller or processor is configured to control the restriction provided by said valve is based on said indication of instantaneous flow rate of said gas ~~through said humidifier~~, in order that the gas exiting from said ~~humidifier~~ outlet is of substantially constant humidity.

12. (Currently Amended) ~~A humidification~~ Humidification apparatus as claimed in claims 7 or 8 wherein said valve ~~comprising~~ comprises an electromechanical actuator

connected to a valve member wherein the energisation of said electromechanical actuator varies the position of said valve member thereby varying the restriction provided by said valve.

13. (Currently Amended) ~~A humidification~~ Humidification apparatus as claimed in claims 7 or 8 wherein said valve ~~comprising~~ comprises either a valve member connected to an elastic member or an elastic valve member wherein said valve ~~being~~ is positioned in said flow of gas at or near said inlet and the position of said valve member or said elastic valve member thereby determines the portion of said gas passing through in said bypass conduit.

14. (Currently Amended) ~~A humidification~~ Humidification apparatus as claimed in claim 13 wherein the position of said valve member or said elastic valve member ~~providing~~ provides an indication of the rate of flow of said gas at said inlet.

15. (Currently Amended) ~~A humidification~~ Humidification apparatus as claimed in claims 1 or 2 further comprising a conduit to convey said gas from said outlet to a patient and including insulation adapted to minimise the rate of heat energy lost by said gas in said conduit, said controller adapted to energise said humidifier and said air heater to minimise the condensation of the vapour from said gas in said conduit while providing a predetermined levels of absolute humidity.

16. Cancelled

17. Cancelled